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Alfalfa Varieties and Areas of Adaptation

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ALFALFA VARIETIES AND AREAS OF ADAPTATION

Prepared by Crops Research Division, Agricultural Research Service

About 40 named varieties of alfalfa, in addition to common alfalfa, are grown on about 30 million acres in the United States. None of these varieties or strains is adapted throughout the country; each is adapted to a limited area.

In 1960,[1] 13 principal varieties made up about 71 percent of the alfalfa acreage. Common strains were planted on 20 percent of the total acreage, "blends" on 6 percent. Varieties of minor importance occupied 1 percent of the total U.S. acreage, leaving 2 percent for acres which were not identified as to variety.

Principal Varieties

NOTE.—Approximate acreage and percentage of total acreage for the principal varieties of alfalfa are given in table 1. Information on area of adaptation, and on winter hardiness, of these varieties is summarized in table 2.

African.—This variety, introduced from Egypt in 1924, is extremely nondormant. It is not winterhardy where winter temperatures are low. African is short lived; stands seldom last more than 3 years. African is upright in habit of growth. It recovers quickly after cutting.

Atlantic.—Atlantic was developed by the New Jersey Agricultural Experiment Station and released in 1940. It is vigorous and high yielding. Plants are variable in growth habit. Foliage is dark green. Most flowers are light purple; other colors and shades are found occasionally. The variety is not resistant to the bacterial wilt organism, but is somewhat tolerant.

Buffalo.—Buffalo was developed by the Kansas Agricultural Experiment Station and the U.S. Department of Agriculture and released in 1943. Buffalo is a bacterial wilt resistant selection from Kansas Common. It is somewhat more upright and slightly quicker to recover than Kansas Common. Buffalo is pur-

TABLE 1.—*Approximate acreage, and percentage of total, for principal varieties of alfalfa*[1]

Variety	Acres	Percent of total
	Thousands	
African	177	0. 6
Atlantic	392	1. 2
Buffalo	2, 746	8. 7
Cossack	392	1. 2
Du Puits	1, 006	3. 2
Grimm	1, 783	5. 6
Ladak	1, 301	4. 1
Lahontan	581	1. 8
Moapa	476	1. 5
Narragansett	456	1. 4
Ranger	9, 142	28. 9
Vernal	3, 814	12. 1
Williamsburg	176	. 6

[1] From "Trends in Forage Crops Varieties," compiled in 1960 by J. M. Saunders, Federal Extension Service, U.S. Department of Agriculture.

[1] Date of last variety survey.

ple flowered and in other respects similar to Kansas Common.

Common.—The term "common alfalfa" is sometimes loosely used to describe any alfalfa that is not a named variety. Thus, the term may refer to—

- Seed that was locally produced.
- Seed of unknown origin.

Generally, the term refers to strains that evolved from natural selection in States west of the Mississippi River. This is the preferred usage of the term, and the following description and comments refer only to such strains.

Strains of common alfalfa are identified by State of origin: California Common, Kansas Common, or New Mexico Common. Parentage of all strains that developed this way traces largely to alfalfa that was introduced around 1850 from Chile. In Arizona and California, common alfalfa is frequently referred to as Chilean alfalfa.

Characteristics of common alfalfa are not sufficiently distinct for a strain to be considered a variety.

Common alfalfas are upright growing and have narrow crown and purple flowers. They are susceptible to bacterial wilt.

Winter hardiness of common alfalfa varies; strains that evolved in cold climates are more winterhardy than those that evolved in warm climates.

Common alfalfa is adapted to areas where climatic conditions are similar to those of the State of origin unless disease or insect problems are present.

Know your varieties. It is very important that you plant seed of a variety that is adapted to the conditions of your area.

Buying certified seed is the best assurance of obtaining seed that will produce plants with the characteristics that make a variety desirable. Certified seed is—

- True to variety name.
- Grown from authentic planting stock.
- Of good planting quality.

Cossack.—Cossack was introduced from Russia in 1907 by the U.S. Department of Agriculture.

Characteristics of this variety are similar to those of Grimm. The main differences: Cossack is slightly less susceptible to bacterial wilt, is slower to recover after cutting, and has a higher percentage of yellow and white flowers.

Du Puits.—Du Puits was developed in France and released to European farmers in 1937. It was received for testing in the United States in 1947.

Du Puits is a vigorously growing variety that recovers quickly after cutting. It is upright in growth and relatively stemmy. Its foliage is dark green. It is moderately resistant to certain foliar diseases, but is susceptible to crown rots and bacterial wilt. It is short lived in some areas.

Grimm.—This variety was introduced from Germany into Carver County, Minn., in 1857. It underwent natural selection in Minnesota.

Grimm is fine stemmed and leafy;

TABLE 2.—*Area of adaptation, and winter hardiness, of principal varieties of alfalfa*

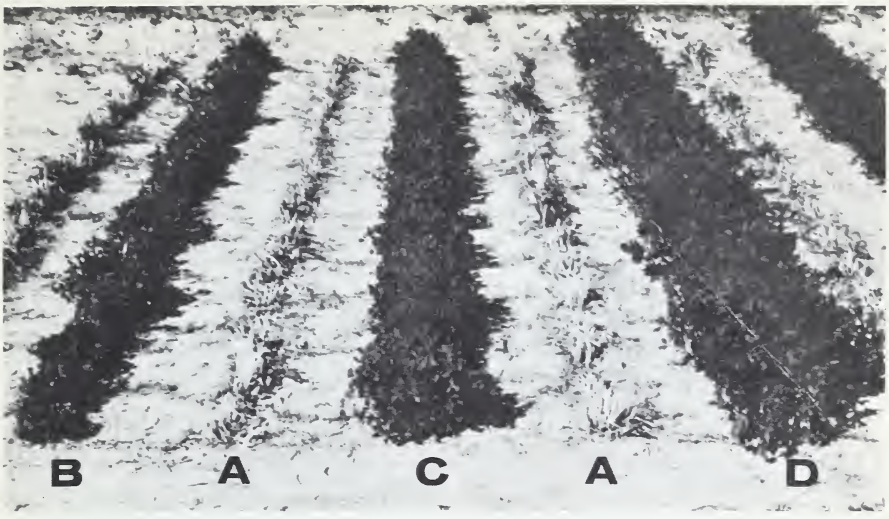
Variety	Area of adaptation	Winter hardiness
African	Deep South and Southwest	Nonhardy.
Atlantic	Northeastern States to North Carolina and west to Mississippi River where bacterial wilt is not a serious factor.	Hardy, but less hardy than Ranger or Grimm.
Buffalo	Overlaps southern limit of Ranger and extends farther south than Ranger. Grown in a 400-mile-wide belt, with Kansas as the center of the belt.	Moderately hardy.
Cossack	Northern States	Very hardy. Much like Grimm.
Du Puits	Northeastern U.S. and Northern States in areas where winters are not severe and long-lived stands are not required.	Moderately hardy.
Grimm	Northern States where bacterial wilt is not a factor.	Very hardy.
Ladak	Northern Great Plains, particularly where moisture is limiting after the first harvest.	Do.
Lahontan	Pacific coast and intermountain areas of the West where bacterial wilt, the stem nematode, and the spotted alfalfa aphid are problems.	Moderately hardy.
Moapa	Deep South and Southwest	Nonhardy.
Narragansett	Northeastern and North Central States where bacterial wilt is not a problem.	Very hardy.
Ranger	Northern Great Plains and eastward	Do.
Vernal	Northern States	Do.
Williamsburg	Northern South Atlantic States where bacterial wilt is not a problem.	Moderately hardy.

it makes high-quality hay. Most flowers are purple. It is susceptible to bacterial wilt; it cannot be expected to yield well where this disease is common.

Ladak.—Ladak was introduced from northern India in 1910 by the U.S. Department of Agriculture. It yields exceptionally well in the first cutting of the season, but not as well as most varieties in the second cutting. It recovers slowly after cutting.

Ladak becomes dormant during prolonged periods of summer drought and goes into dormancy early in the fall. It has a low level of resistance to bacterial wilt.

Lahontan.—Lahontan was developed by the Nevada Agricultural



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Differences in stands of alfalfa resulting from varietal susceptibility to the spotted alfalfa aphid. *A* is a susceptible variety. The others are resistant: *B,* Lahontan; *C,* a resistant experimental line; *D,* Moapa.

Experiment Station and the U.S. Department of Agriculture and was released by the experiment stations in Nevada and California for seed increase in 1954.

Lahontan has purple flowers. It has an upright habit of growth and recovers quickly after cutting. It is resistant to bacterial wilt, the stem nematode, and the spotted alfalfa aphid, but is susceptible to foliar diseases.

Moapa.—This variety was developed by the Nevad. Agricultural Experiment Station and the U.S. Department of Agriculture. It was released jointly by these agencies and the agricultural experiment stations of Arizona and California in 1957.

Moapa is highly resistant to the spotted alfalfa aphid. It also has some resistance to bacterial wilt—it is more resistant than African but less resistant than Ranger. It is similar to African in growth characteristics. Like African it grows late in the fall and early in the spring. It recovers quickly after cutting.

Narragansett.—This variety was developed by the Rhode Island Agricultural Experiment Station and named in 1946.

The plants are vigorous and vary from prostrate to upright in habit of growth. Narragansett has wide crowns and dark-green foliage. Flowers are predominantly blue, but color ranges from yellow to purple; many flowers have a greenish-blue shade. The variety is very susceptible to bacterial wilt.

Ranger.—Ranger was developed by the Nebraska Agricultural Experiment Station and the U.S. Department of Agriculture and was released in 1942.

Ranger is resistant to bacterial wilt and is a good forage and seed producer. It recovers more quickly after cutting than Ladak or Cossack—about as quickly as Grimm. Ranger is somewhat susceptible to leaf spot diseases.

Plants vary in habit of growth—some are upright; others are semi-upright. Flower color varies.

Vernal.—Vernal was developed by the Wisconsin Agricultural Experiment Station and the U.S. Department of Agriculture and was released in 1953.

Vernal is an outstanding forage producer in the North Central States. It has fine stems, leafy, dark-green foliage, and broad crowns. It makes only a moderately rapid recovery after cutting, and goes into dormancy early in the fall. It is highly resistant to bacterial wilt, and is tolerant to leaf spot and to yellow leaf blotch.

Williamsburg. — Williamsburg was developed by the Virginia Agricultural Experiment Station from selections of Kansas Common and was released in the mid-1940's.

Williamsburg has an upright habit of growth. It recovers fairly quickly after cutting and may have some resistance to certain crown-rotting organisms occurring in the Coastal Plains area of Virginia and North Carolina. It is susceptible to bacterial wilt.

Variety recommendations are not given in this publication. Variety recommendations for each State are made by the State's agricultural experiment station.

New Varieties

Six varieties of alfalfa developed by State agricultural experiment stations or by States in cooperation with the U.S. Department of Agriculture have been released since 1958. These varieties were not extensively planted in 1961, but their performance where grown indicated that they may become important varieties.

The six varieties are Teton, Zia, Cody, Culver, Cayuga, and Cherokee.

Teton.—Teton was developed by the South Dakota Agricultural Experiment Station and was released in 1958.

Teton has a low, wide crown with aggressive development of rhizomes (underground stems). It is more dormant than Ladak after the first harvest and in the fall. The highest forage yield is obtained in the first cutting of the season. Teton has been more persistent than other varieties in South Dakota tests. It yields less than other varieties where droughts are not serious problems. This variety has moderate resistance to bacterial wilt, common leaf spot, and field infection caused by two *Fusarium* species causing root rots.

Teton is very winterhardy.

Zia.—Zia was developed by the New Mexico Agricultural Experiment Station and was released in 1958.

Zia is resistant to the spotted alfalfa aphid. It is slightly less winterhardy than Lahontan.

Cody.—Cody was released in 1959 by the Kansas Agricultural

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Four-year-old plots of alfalfa showing differences in varietal resistance to bacterial wilt. Left to right in foreground: Ranger, Narragansett, Vernal. (Courtesy of Wisconsin Agricultural Experiment Station.)

Experiment Station and the U.S. Department of Agriculture.

Cody is highly resistant to the spotted alfalfa aphid. It was selected from Buffalo. Its growth characteristics and resistance to bacterial wilt are similar to those of Buffalo.

Cody is moderately winterhardy.

The area of adaption is similar to that of Buffalo except that Cody can be grown where the spotted alfalfa aphid is a problem.

Culver.—Culver was developed by the Indiana Agricultural Experiment Station in cooperation with the Central Alfalfa Improvement Conference. It was released in 1959.

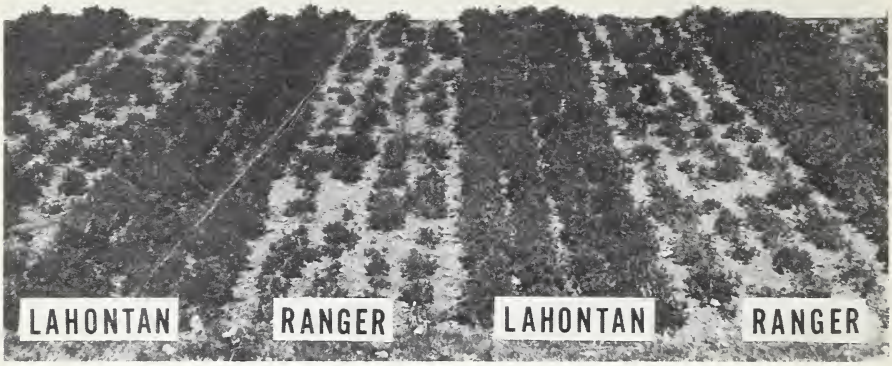
The variety has enough resistance to the meadow spittlebug to perform well under normal infestation without the protection of insecticides; in epidemic infestations an insecticide should be used, however. This variety is resistant to bacterial wilt. Culver also has some resistance to the potato leafhopper and the spotted alfalfa aphid.

Culver is winterhardy.

Cayuga.—Cayuga was developed by the Cornell Agricultural Experiment Station and released in 1960. Cayuga is a wilt-resistant variety which does well under intensive management on good alfalfa soils in the Northeastern States. It is intermediate in recovery growth rate between Du Puits and Vernal. Seedling vigor was less and first-year hay yields averaged one-half ton lower than Du Puits; second-year production was equal. Third- and fourth-year yields were greatly in favor of Cayuga, because stands of Du Puits declined.

Cayuga is adapted to the Northeastern States.

Cherokee.—Cherokee was developed by the North Carolina Agricultural Experiment Station in cooperation with the U.S. Department of Agriculture. It was released in 1961.



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Plots of Lahontan and Ranger alfalfa, near Reno, Nev., showing differences in varietal susceptibility to the stem nematode.

This variety yields well and has more tolerance to leafhopper yellowing and rusts than other varieties. It is also slightly more persistent. Early spring growth behavior and rapidity of recovery after cutting are intermediate between Atlantic and Du Puits. Cherokee is moderately susceptible to bacterial wilt.

This variety has moderate winter hardiness.

It is adapted to North Carolina and probably to neighboring States.

Other Varieties

When the variety survey was conducted in 1960, about 20 more named varieties were being grown on less than 300,000 acres, or less than 1 percent of the total acreage.

Varieties of U.S. origin which are grown on relatively small acreage include Caliverde, California Common 49, Chilean 21–5, Hairy Peruvian, Indian, Meeker Baltic, New Mexico 11–1, Nomad, Sevelra, and Talent. Each variety accounted for less than two-tenths of 1 percent of the national acreage.

Varieties of foreign origin (other than Du Puits) were grown on less than one-half of 1 percent of the total acreage. They included Alfa, Canadian Variegated, Pilca Butta, Rambler, and Rhizoma.

If you need more information about alfalfa varieties, see Agriculture Handbook 177, "Alfalfa Varieties in the United States," published by the U.S. Department of Agriculture. This publication is available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., for 15 cents.

This leaflet supersedes Farmers' Bulletin 1731, "Alfalfa Varieties in the United States."

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